Clinical Safety & Effectiveness
Cohort # 24
Team # 8
Improving Radiation Therapy On-Treatment Patient Care
Background

- Most radiotherapy is delivered daily over several weeks. Weekly checkups with a physician are a critical part of the standard of care in a radiation oncology clinic to assess the treatment progress and address any potential side effects.

- In the past 6 months, we have missed 4.3% of these standard of care appointments.
What We Are Trying to Accomplish?

OUR AIM STATEMENT

To reduce the missed patient weekly visits in the Radiation Oncology department at Mays Cancer Center from 4.3% to below 3% by May 31th, 2019.
The Team

• Neil Kirby, Cesar Ramirez, Zheng Shi, Amanda Ramos, Bill Nordwick.
• Department Sponsor - Niko Papanikolaou.
• Facilitator - Sherry Martin.
• Statistics Assistance - Wayne Fischer.
Brainstorming and Affinity Sort
The major issues are related to awareness of weekly visits and variations in scheduling procedures.

**Fishbone Diagram**

**Communication**
- Vault loses patient printout
- Patient slip not given to vault
- Patient listed under wrong provider
- Information stored in multiple systems
- Miscommunication between MA and therapist

**Awareness**
- Patient not scheduled for weekly visit
- Therapist let patient leave before visit
- No standard procedure
- Patient unaware of weekly visit
- Machine didn’t give patient their slip
- Patient forgets

**Physician Schedule**
- Physician takes too long to show up
- Provider not assigned to patient
- Physician not available
- Physician double booked
- Physician out on vacation

**Patient**
- Patient has another appointment
- Concurrent chemo
- Patient left without being seen
- Patient refused visit
- Patient can’t wait

**Missed Treatments**
- Machine down
- Patient no show
- Holiday
- Patient hospitalized
Patient Questionnaire

• We created a patient questionnaire to additionally assess patient satisfaction related to these weekly visits.
• These answers will also be used as process measures to focus our areas of improvement.

Initial Patient Survey at the beginning of radiation course

1. Are you aware of seeing your doctor every week during radiation course? Yes □ No □
2. Do you know usually which day of the week you will see your doctor? Yes □ No □
3. Do you have a paper slip from your therapist to see your doctor? Yes □ No □
4. Are you brought to the nurse station by your therapist to see your doctor? Yes □ No □
5. Do you use My Chart to check your schedule during radiation treatment? Yes □ No □
1. Patient unaware of weekly visit day.
2. Patient unaware they have weekly visits.
3. Patient not brought to the correct place for visit.
4. Patient not given a weekly visit slip.

Pareto Analysis showed that over half of the patients didn’t know their weekly visit day and 27% didn’t even know they had weekly visits.
• Patient billing codes were used as a process measure for weekly visits.
• Patients get weekly visits every 5 treatments.
• Treatment is associated with a billing treatment code (G6012, G6013, G6014, G6015).
• Each weekly visit is also associated with a billing code (77427).
A Matlab program was written to extract the needed data and calculate the missed weekly visits. At every fifth fraction, it checks whether there has been a weekly visit. This analysis yield that 4.32% of weekly visits were missed.
## Data Collection Plan

<table>
<thead>
<tr>
<th>Type of Measure</th>
<th>Measure</th>
<th>Data Elements</th>
<th>Data Category</th>
<th>Data Source</th>
<th>Data Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Measure</td>
<td>% missed weekly visits</td>
<td>$\frac{# \text{Missed Visits}}{# \text{Total Possible Visits}}$</td>
<td>Automated</td>
<td>Mosaiq EMR system</td>
<td>Weekly</td>
</tr>
<tr>
<td>Process Measure</td>
<td>% patients unaware of visits</td>
<td>$\frac{# \text{Unaware of Visits}}{# \text{Patients}}$</td>
<td>Manual</td>
<td>Patient Survey</td>
<td>Weekly</td>
</tr>
<tr>
<td>Process Measure</td>
<td>% patients unaware of visit day</td>
<td>$\frac{# \text{Unaware of Day}}{# \text{Patients}}$</td>
<td>Manual</td>
<td>Patient Survey</td>
<td>Weekly</td>
</tr>
<tr>
<td>Process Measure</td>
<td>% patients not given visit slip</td>
<td>$\frac{# \text{Not Given Slip}}{# \text{Patients}}$</td>
<td>Manual</td>
<td>Patient Survey</td>
<td>Weekly</td>
</tr>
<tr>
<td>Process Measure</td>
<td>% patients not brought to nurse’s station</td>
<td>$\frac{# \text{Not Brought to Nurse’s Station}}{# \text{Patients}}$</td>
<td>Manual</td>
<td>Patient Survey</td>
<td>Weekly</td>
</tr>
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</table>
### Driver Diagram

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<tr>
<th>Aim</th>
<th>Primary Drivers</th>
<th>Interventions</th>
</tr>
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<td><strong>Primary Drivers</strong></td>
<td><strong>Interventions</strong></td>
</tr>
<tr>
<td>Write your project goal here.</td>
<td>List the main drivers that you identified in your diagnostic journey that influenced your goal. Use a verb to describe the driver.</td>
<td>List the actions, processes, or interventions that when performed correctly will lead to a positive effect on a driver. Link these to the relevant driver.</td>
</tr>
<tr>
<td></td>
<td>Improve communication among caregiver team – Accurate communication among the caregivers team is critical.</td>
<td>Implement scheduling procedure – 3/25/19</td>
</tr>
<tr>
<td></td>
<td>Increase awareness – Awareness of the need for and policy on weekly visits from the caregivers and patients is critical.</td>
<td>Colored slips for the therapist at vault – 3/18/19</td>
</tr>
<tr>
<td></td>
<td>Reduce confusion following missed treatments – These are caused by equipment failure and patient hospitalization. They can lead to confusion about weekly visit days.</td>
<td>Door sign for weekly visit physicians – 4/10/19</td>
</tr>
<tr>
<td></td>
<td>Optimize physician schedules – Vacations, sick days, and double bookings have caused issues with missed weekly visits.</td>
<td>Patient education – 3/18/19</td>
</tr>
<tr>
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<td>Optimize patient schedules – Patients sometimes simply don’t have the time to see their physician for weekly visits.</td>
<td>Colored slips for the therapist at vault – 3/18/19</td>
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Team-Developed Intervention Strategies

Our intervention plan has 4 different aspects:

1. Implement of a uniform weekly visit scheduling procedure.

2. Create a uniform patient education policy, for both oral and written instructions.

3. Create colored slips to give to the patients on their weekly visit days.

4. Place door signs/TV screen to signify which physician is performing weekly visits.
Implementing the Changes

Our intervention plan has 4 different aspects:

1. Implement of a uniform weekly check scheduling procedure.
   3/25/19 implemented a uniform “schedule as recurring” policy to evaluate effectiveness and cross checking for scheduling.

2. Create a uniform patient education policy, for both oral and written instructions.
   3/18/19 oral education of weekly visit implemented by nursing. 3/25/19 written education attached to CT simulation handouts.

3. Create colored slips to give to the patients on their weekly check days.
   3/18/19 pink slips handed to the therapists.

4. Place door signs to signify which physician is performing weekly checks.
   Door signs were put out on 4/10/19. TVs were installed at the vaults on 4/23/19 to signify physician visit day.
Results/Impact - Overall

Before – 4.32%  

After – 2.65%

Start of Interventions
Results/Impact – Dr. Shi

Before – 0.37%  After – 0.81%

Start of Interventions
Results/Impact – Physician A

Before – 7.6%  After – 0%

Start of Interventions
Results/Impact – Physician B

Before – 7.0%  
After – 5.7%

Start of Interventions
Results/Impact – Patient Survey

Unaware of weekly checks

Unaware of weekly check day

Didn't get a weekly slip

Not brought to nurse's station
Return on Investment

• A weekly visit has a direct monetary value associated with it, which varies based on provider (from $162 to $327).
• An average reimbursement across all providers is $195 per provider visit.
• So far, we have reduced the missed weekly checks.
• At an average of 80-100 patient visits per week,
• **Annual ROI** = 80-100 patients/week * 0.0167 missed * 52 weeks/year* $195 = **$13,547-$16,934 per year**
Lessons Learned

• Effective communication is critical to getting buy in.

• Evaluating performance on a physician-by-physician basis was critical for our future improvements.

• We should be able to achieve even lower miss rate than our 3% goal.
  - Enforce patient education and awareness
  - Standardize patient scheduling and cross-checking
What’s Next

• We will suspend the patient questionnaires.

• We will now switch to looking into physician-specific interventions.

• The missed weekly visit software will be running monthly for the entire clinic and individual physician to ensure sustainability.
Thank you!